

# NAVAL MEDICAL RESEARCH AND DEVELOPMENT NEWS

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## Naval Medical Research Center Change of Command and Retirement Ceremony



*Rear Adm. Bruce Doll (left) presents award to Capt. Richard L. Haberberger, Jr., NMRC Commanding Officer, during the NMRC Change of Command, August 2012. Photo by Phil Collins.*

SILVER SPRING, Md.—Capt. John W. Sanders relieved Capt. Richard L. Haberberger, Jr., as commanding officer, Naval Medical Research Center ([NMRC](#)), during a change of command and retirement ceremony, August 17, 2012, at the Daniel K. Inouye Building, U.S. Army Forest Glen Annex, Silver Spring, Md. During the ceremony, Haberberger retired from active duty after 29 and a half years of Naval service as a commissioned officer. He was honored for a very successful career and a tremendously productive tour as the NMRC commanding officer.

The ceremony, steeped in time-honored traditions and rich in Naval heritage, opened with patriotic music from a U.S. Navy quartet, followed by the arrival of the official party, the

parade of colors by the Walter Reed National Military Medical Center Color Guard, and Ms. Kayla Gomez, Haberberger's granddaughter, singing the National Anthem.

During his welcoming remarks, Rear Admiral Bruce A. Doll, Medical Advisor, Allied Command Transformation (NATO), recognized the contributions of the Naval Medical Research Center under the command of Capt. Haberberger. "Your oversight and engaged leadership at the helm of NMRC has significantly contributed to the welfare of our sailors and Marines as well as all service members.

Though there are too many to mention here, please accept my congratulations on shepherding advances in medical system support for expedition-

*(Continued on page 4)*

## Commanding Officer's Message

August 17, 2012, was the Change of Command and Retirement Ceremony here at the Naval Medical Research Center in Silver Spring, Md. It was a great day for Capt. Richard L. Haberberger, retiring commanding officer, and for me. Capt. Haberberger was honored for a very successful career and a tremendously productive tour as the NMRC commanding officer. I want to thank Capt. Haberberger for his mentorship and guidance when I was the commanding officer at the U.S. Naval Medical Research Unit No. 6 in Lima, Peru, and then the executive officer here. Part of his legacy will certainly be the leaders he shaped and inspired.

For me, it was a day of great opportunity, one for which I am extremely grateful. Years ago, when I was an Internist and was considering getting out of the Navy for an Infectious Disease Fellowship, I called the Fellowship Director at Duke University to discuss their program. He asked why I would consider leaving the Navy to come to Duke; I answered that I wanted to be associated with an institution in which I could see patients, teach, and participate in world-class research. He then replied "Boy, how dumb are you? Don't you know that the Navy has first-rate hospitals with complex, interesting patients; strong teaching programs from medical school through fellowship; and a network of medical research laboratories that is the envy of every research institution or university in the world?" He encouraged me to stay in the Navy because Navy Medicine's dedicated CONUS and OCONUS research laboratories could provide opportunities that I could never get anywhere else. And he was so right.

I know there are challenges ahead. These are austere times and change is part of our future, but I also know that there is a tremendous need for what we do and great opportunities to meet those needs. I can't wait to get started!

Commanding Officer sends,  
John W. Sanders III  
CAPT, MC, USN



## Capt. Eric Elster Selected as New Surgery Department Chair



*Capt. Eric Elster, new chair of the Norman M. Rich Department of Surgery for the F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences.*

*From USU Public Affairs*

BETHESDA, Md—Capt. Eric Elster, a Navy transplant surgeon and researcher at the Naval Medical Research Center ([NMRC](#)), was selected as the new chair of the Norman M. Rich Department of Surgery for the F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences (USU).

Elster, who formerly served as director of surgical services and chief of surgery at the Role 3 hospital in Kandahar, Afghanistan, will retain his position as a senior investigator in the Regenerative Medicine Department at NMRC in Silver Spring, Md., where he actively pursues research in combat casualty care and wound failure.

"Dr. Elster is an established leader in transplant surgery and military medicine. He is an internationally recognized clinical scientist, academic scholar and educator," said Larry W. Laughlin, M.D., Ph.D., F. Edward Hé-

bert School of Medicine dean. "Dr. Elster was the outstanding choice for this prestigious and critical position."

Elster earned his undergraduate degree in interdisciplinary studies from the honors program of the University of South Florida (USF). He followed with his Doctor of Medicine degree from USF through the Armed Forces Health Professions Scholarship Program. Elster completed his residency training in general surgery at the National Naval Medical Center (NNMC), Bethesda, and a transplant fellowship at the National Institutes of Health.

Among his military assignments, Elster has served as surgeon with the 31st Marine Expeditionary Unit in Okinawa, Japan; attending surgeon, Naval Hospital, Yokosuka, Japan; ship's surgeon for the USS Kitty Hawk; staff senior scientist, NMRC; attending surgeon, general and transplant, NNMC, WRAMC, and the Walter Reed National Military Medical Center. In 2005,

*(Continued on page 5)*



## Navy Lab Welcomes New Commander with Traditional Ceremony

By Joe N. Wiggins, NAMRU-San Antonio Public Affairs

SAN ANTONIO, Texas—One of Navy Medicine's newest labs welcomed a new commanding officer in a ceremony rooted deep in Navy traditions and customs.

Capt. Rita G. Simmons became the second commanding officer of the Naval Medical Research Unit-San Antonio ([NAMRU-San Antonio](#)) during a ceremony officiated by Capt. Richard L. Haberberger, Jr., commanding officer of the Naval Medical Research Center, Silver Spring, Md. Capt. Vincent DelInnocentiis, the outgoing commanding officer, received the Legion of Merit award for his service.

In accepting her assignment as the commanding officer, Simmons offered her initial impressions of the facilities at NAMRU-San Antonio.

"Over the past two weeks, I have had the opportunity to tour the facilities and meet almost all of the staff, and all I can say is 'wow'. I have worked in or visited many research labs, and I can say the laboratories,



*"I relieve you." "I stand relieved." With those words, Capt. Rita G. Simmons (left) assumes command of NAMRU-San Antonio from Capt. Vincent DelInnocentiis (right). Capt. Richard L. Haberberger, Jr., commanding officer, NMRC (center), serves as the presiding officer of the ceremony.*

capabilities and brain trust resident within this command are unparalleled," she said. "To the staff of

NAMRU-San Antonio, you should be very proud of your accomplishments. All I can say is that I am very fortunate to be stepping into this command at this moment in time."

The outgoing commanding officer recalled many of the challenges he and the command faced during his tenure.

"The amazing men and women of NAMRU-San Antonio were able to keep your focus on our mission as we met the challenges of the [2005] BRAC decision that brought us here," said DelInnocentiis. "During the past three years, we have established the command, moved personnel and equipment from three locations to one, and still completed more than 48 cutting-edge warfighter-oriented research studies and received three patents, with another three pending."

As the ceremony's presiding officer, Haberberger offered praise to the command's staff and its first commander.

"Today, one of Navy Medicine's leading research units is saying goodbye to their first commanding officer, (Continued on page 15)



*Capt. Rita G. Simmons (standing) comments on the accomplishments and challenges ahead after becoming the commanding officer of the NAMRU-San Antonio. Other officials in the ceremony include (seated, from left) Capt. Vincent DelInnocentiis, outgoing commanding officer; Capt. Richard L. Haberberger, Jr., commanding officer, NMRC; and Chaplain (Lt. Cmdr.) Joseph S. Blair. Photos by Joe N. Wiggins.*

## The NMRC Change of Command and Retirement Ceremony

(Continued from page 1)

ary and maritime operations, combat casualty care, traumatic brain injury and psychological health treatment, to name just a few."

Doll also spoke about the Navy Medicine laboratories throughout the world with dedicated active, Reserve and civilian personnel focused on numerous mission-related issues related to warfighter wellness, readiness and resilience.

Rear Admiral Michael H. Mittelman, Deputy Surgeon General of the Navy, one of the invited speakers, spoke of NMRC researchers as not just doing science, but also acting as national strategic enablers by often leading through their scientific actions and beginning the first dialogues in areas of the world where the Navy has a strategic interest.

"Our researchers are part of the forward deployed forces," said Mittelman. "NMRC is a key strategic enabler and we have to thank the men and women of NMRC for bringing their work forward. They are doing unbelievably important work and it is often below the radar screen. Every day they are the ones doing the medical enabling on the local level and really making a difference for all of us."

Mittelman also focused on the business of research and spoke about the challenges to come for the research and development enterprise. He said that a worldwide Navy medical operation demands world-class research and development. He added that at the same time, Navy Medicine needs to provide family-centered care for a growing number of beneficiaries, and this will pose a formidable environment for the current and next generation of leaders coming forward. This challenge requires reorganizing research and development to better support the fleet.

At the heart of a Change of Command ceremony is the formal reading of the official orders.

Before Haberberger read his orders, he addressed an audience of guests, family and friends and reflected on his tenure as the commanding officer. He showcased the numerous accomplish-



*Capt. John W. Sanders (left) and Capt. Richard L. Haberberger, Jr. (right) and their wives cut the cakes during the change of command and retirement ceremony. Photo by Phil Collins.*

ments of the command and paid tribute to the many people who support the NMRC mission as well as thanking his career mentors and peers.

"The men and women who make up our global team represent an impressive array of academic and scientific knowledge with years of practical experience in science, medicine and the military. Those who work in our laboratories and in the field, often times in remote areas of the world, build partnerships with other government and civilian agencies and private industry; they are an impressive multifaceted and multitalented team. This dedicated staff plays a critical and vital role within Navy Medicine."

Following Haberberger, Sanders, who previously served as the commanding officer of the U.S. Naval Medical Research Unit No. 6 in Lima, Peru, read his orders and expressed his admiration and appreciation for Haberberger's numerous accomplishments.

"I want to thank Capt. Haberberger for his mentorship and guidance. Part of his legacy will certainly be the leaders he shaped and inspired. I know there are challenges ahead for us. These are austere times and change is

part of our future; but I also know that there is a tremendous need for what we do and great opportunities to meet those needs."

He went on to add, "Here and at our sister labs, we understand we are working with clear research objectives in mind and we have a critically important mission. Reaching those objectives is often, in fact almost always, extremely difficult. But one need only make clinical rounds at the Walter Reed National Military Medical Center to be inspired to do more. We are going to continue down this path, asking appropriate questions, testing hypotheses, finding solutions and staying focused on our mission. We are going to continue to develop systems and improve processes to make it easier for us to achieve our mission."

NMRC, as a laboratory, focuses on solutions to operational medical problems such as battlefield neurotrauma and wounds, decompression sickness, naturally occurring infectious diseases, biological threat agents, and bone marrow injury. NMRC, as the headquarters for Navy Medicine's global biomedical research enterprise, has oversight of seven other laboratories.



## Former Marine Corps Infantryman, New Department Head at NMRC

SILVER SPRING, Md.—Cmdr. Jonathan Forsberg, an active clinician scientist, was appointed head of the Regenerative Medicine Department in the Operational and Undersea Medicine Research Directorate at the Naval Medical Research Center (NMRC), Silver Spring, Md., August 6.

“As head of the department, Cmdr. Forsberg will oversee combat casualty research and mentor orthopedic and general surgery residents in translational research,” said Dr. Stephen Ahlers, director of the Operational and Undersea Medicine Directorate. “He will spend his time between NMRC and the Walter Reed National Military Medical Center in Bethesda engaged in treating combat-related extremity injuries in addition to maintaining a busy orthopedic oncology practice.”

Forsberg’s current research efforts focus on characterizing and preventing combat-related heterotopic ossification, which is the formation of bone in the soft tissue of an injured warfighter. Massive soft tissue and bone deficits along with emerging long-term sequelae such as heterotopic ossification have become the hallmark of the current conflicts.

Forsberg said, “Our cumulative knowledge [of modern combat wounds] continues to evolve and our people remain on the cutting edge of what is currently possible in terms of characterizing these wounds. Rest assured, the Regenerative Medicine Department will continue to focus its efforts right where they belong – on the wounded warfighter.”

One study he is actively involved with is the first multicenter randomized clinical trial designed to evaluate the safety and efficacy of a treatment for the prevention of combat-related heterotopic ossification.

“This study will help identify wound-specific heterotopic ossification (HO) formation at a time thought to be amenable to local and/or systemic means of prophylaxis,” said Forsberg. “We recently developed a biomarker panel that esti-



*Cmdr. Jonathan Forsberg, new head of NMRC's Regenerative Medicine Department.*

mates the likelihood of HO formation in this difficult to treat patient population.”

Forsberg, a U.S. Naval Academy graduate, served as a general medical officer with the 31st Marine Expeditionary Unit in Okinawa, Japan after medical school. He went on to complete an orthopedic surgery residency at the National Naval Medical Center in Bethesda, Md., followed by a deployment to Iraq. He then completed the orthopedic oncology fellowship at Memorial Sloan-Kettering cancer Center in New York City.

The Naval Medical Research Center in Silver Spring, Md., focuses on solutions to operational medical problems such as battlefield neurotrauma and wounds, decompression sickness, naturally occurring infectious diseases, biological threat agents and bone marrow injury research.

## Capt. Eric Elster Selected as New Surgery Department Chair

*(Continued from page 2)*

he was assigned as deputy department head, Regenerative Medicine department, NMRC. He has held an appointment to the USU surgery department faculty since 1999.

Elster is a Diplomate with the American Board of Surgeons, a Fellow of the American College of Surgeons, a Fellow of the Southeast Surgical Congress, and a member of the American Society of Transplantation, American Society of Transplant Surgeons, Association for Academic Surgery, Society of University Surgeons, and the Surgical Infection Society. He has written and published extensively on transplantation, combat wounds and regenera-

tive medicine.

The F. Edward Hébert School of Medicine is the nation’s only federal medical school, operated by the Department of Defense. The school’s medical students are active-duty uniformed officers dedicated to career service in the Army, Navy, Air Force and Public Health Service. In addition to its traditional medical school curriculum, the F. Edward Hébert School of Medicine emphasizes instruction in tropical and infectious diseases, preventive medicine, the neurosciences (including TBI and PTSD), disaster response and humanitarian assistance, and acute trauma care.

The mission of the NMRC Regen-

erative Medicine Department is to understand the response to injury and develop improved diagnostics, therapeutics, and decision-support tools for combat-related injuries. The unique collaboration between physicians, scientists, engineers and mathematicians enables the team to bring a broad variety of expertise to bear in an effort to solve important but difficult clinical problems. Working with the Department of Surgery at the Uniformed Services University, the Walter Reed National Military Medical Center, and civilian academic partners, the team conducts translational research from the battlefield to the bedside that is designed to benefit the wounded warfighter.

## NAMRU-2 Detachment Phnom Penh Staff Visit USNS Mercy

By Lt. Michael Prouty, NAMRU-2 Det. Phnom Penh

CAMBODIA—Twenty-nine staff members from the U.S. Naval Medical Research Unit No. 2 Detachment Phnom Penh ([NAMRU-2 PP](#)) had the opportunity to learn more about U.S. humanitarian and civic assistance missions during a tour of the Military Sealift Command hospital ship USNS Mercy (T-AH 19) ported in Sihanoukville, Cambodia as part of Pacific Partnership 2012, August 5.

The USNS Mercy remained moored offshore, providing an exciting but short boat ride for the NAMRU-2 PP staff to reach the ship.

"It is amazing; I have never seen a ship that huge before. It is great that the U.S. Navy came to help Cambodia," said Vireak Heang, medical laboratory technician, as the transport boat approached the ship.

The arrival of the 1,000-bed hospital ship nearly doubled the hospital bed capacity of Cambodia. There are only 1,500 hospital beds in all of Cambodia.

NAMRU-2 PP staff were greeted by the sailors while boarding the ship. The tour began with a presentation detailing the mission and accomplishments of Pacific Partnership 2012. Following the introduction, two sailors led the NAMRU



Twenty-nine staff members from the U.S. Naval Medical Research Unit No. 2 Detachment Phnom Penh (NAMRU-2 PP) had the opportunity to learn more about U.S. humanitarian and civic assistance missions during a tour of the Military Sealift Command hospital ship USNS Mercy (T-AH 19) ported in Sihanoukville, Cambodia as part of Pacific Partnership 2012, August 5.

-2 staff through the ship describing the capabilities. The staff visited different medical departments, including receiving and triage, the surgical suite and the clinical laboratory.

Day-to-day life on the ship was highlighted, and the sailors explained how operations such as fire fighting, crew

and patient food services and crew recreation were handled. Members of the NAMRU-2 PP Bacteriology and Parasitology Section thought it was nearly unbelievable that there is a hospital on a ship that can move to most of the world's countries in order to provide healthcare service without charging any money from the patient. All medical treatment in Cambodia must be paid in advance.

The ship's visit to Cambodia truly leaves a lasting impression on all who get to see it.

"[The] USNS Mercy ship is a great hospital providing health services and other activities in Pacific Partnership countries who really need it," said Vichhay Poun, Kampong Cham field laboratory technician.

Pacific Partnership is the largest annual humanitarian and civic assistance mission in the Asia-Pacific region. Over 1,100 personnel representing 12 nations and 24 non-governmental organizations spent nearly 5 months visiting the countries of the Philippines, Indonesia, Vietnam and Cambodia to provide much-needed medical assistance and civil action projects.



The NAMRU-2 PP staff tour began with a presentation detailing the mission and accomplishments of Pacific Partnership 2012.



## NAMRU-3 Provides Malaria Support within the AFRICOM AOR

*From NAMRU-3 Public Affairs*

CAIRO—The U.S. Naval Medical Research Unit No. 3 ([NAMRU-3](#)) plays an important role in U.S. force health protection efforts in the region through malaria outbreak support, vector control efforts and training for malaria prevention and diagnostics.

Following the 2010 death of a U.S. service member in Liberia due to malaria and identification of other cases, NAMRU-3 provided key on-site outbreak assistance with infectious disease, entomology and epidemiologic support in collaboration with the U.S. Army Public Health Command – Europe (USAPHC-Europe). USAPHC-Europe provides comprehensive military public health programs in support of garrisons, training areas, and contingency and combat forces operating in the area of responsibility (AOR) to sustain force health protection and readiness. NAMRU-3 provided an extensive

report of findings and recommendations to the U.S. Africa Command (AFRICOM). This report was presented to a multi-agency panel of



*Field training: larval collection with Dr. Alia Zayed, NAMRU-3 entomologist.*

malaria experts resulting in policy changes to improve training for deployed medical assets. AFRICOM is responsible to the Secretary of

Defense for U.S. military relations with 54 African countries.

NAMRU-3 has subsequently led vector control efforts in support of Operation Onward Liberty and has begun collaboration with the Liberian Institute for Biomedical Research (LIBR) to develop a comprehensive strategy for identifying, monitoring and controlling *Anopheles gambiae*, the main vector of malaria in the area. Operation Onward Liberty is an AFRICOM program aimed at rebuilding the Armed Forces of Liberia.

NAMRU-3 has also provided laboratory assistance to support the diagnosis of malaria in U.S. service members in Comoros and Uganda and has developed an on-site malaria diagnostics training program for isolated medical assets within the AOR.

NAMRU-3 vector surveillance projects in Djibouti have led to modification of the force health protection plan for malaria prevention in the area. The lab also developed the first vector map for three main districts in Djibouti. Information of the  
*(Continued on page 12)*



*Field training: larval collection with Dr. Alia Zayed, NAMRU-3 entomologist.*



# The Physical and Cognitive Research Environment at NHRC

From NHRC Public Affairs

SAN DIEGO—The Warfighter Performance Laboratory at the Naval Health Research Center (NHRC) in San Diego focuses on maximizing operational performance and enhancing warfighter resilience as well as improving assessment, diagnosis and advanced rehabilitation strategies. One of the functional research groups within the Warfighter Performance Laboratory is the Physical and Cognitive Research Environment (PhyCORE) research team. PhyCORE research focuses on physical and cognitive performance factors of healthy and injured warfighters. The Computer Assisted Rehabilitation Environment (CAREN) is a multifunctional system, including a 6-degrees-of-freedom motion platform, 12 cameras for 3D motion capture, a dual-belt treadmill, embedded force plates, a 180-degree 10-foot-tall panoramic screen, and realistic sounds and scents.

The NHRC CAREN, one of four in the Department of Defense, allows for the assessment of kinetic and kinematic measurements in a fully immersive virtual environment. Cognitive activities with physical tasks can also be implemented.

With research focused on warfighters who have suffered traumatic brain



*Vestibular patient from NMCS D in a rehabilitation exercise in the PhyCORE. Image courtesy of NHRC Public Affairs.*

injury and/or amputation, the PhyCORE research team strives to improve rehabilitation programs and techniques, enabling the injured warfighters to regain autonomy and independence in the community through improved rehabilitation practice and patient care.

The PhyCORE research team has several active protocols in place to establish baseline standards of performance in novel immersive virtual environments using CAREN for both healthy and injured populations (e.g., *Development of a Database for Able-Bodied Ambulators* and *Development*

*of a Database for Lower-Limb Amputees*). Measurements of gait, muscle activation, biomechanics, and body composition are collected and used for assessment.

In collaboration with the Naval Medical Center San Diego, the PhyCORE research team is studying the performance of wounded warriors with vestibular dysfunction and/or amputation through protocols such as *Improved Training Method for Rapid Rehabilitation of Amputees* and *Balance Training in Patients with TBI*.

Preliminary results suggest that volunteers under some circumstances perform differently in the virtual environment compared to the traditional laboratory setting. However, training programs conducted in the virtual environment lead to improvements in physical and cognitive tasks in both healthy and injured populations.

While research findings are presented to sponsors and to the medical and scientific communities, the PhyCORE research team is also actively collaborating with the other DoD CAREN facilities to augment treatment regimens for wounded warriors. In addition, the PhyCORE research team participates in the CAREN work group, an international group of CAREN facilities sharing ideas and experiences to push the field of virtual environment therapy to new levels of success.



*The PhyCORE team, from left: Amanda Markham, Del Johnson, Dr. Pinata Sessoms, Eric Duckworth, LT Seth Reini, Kathrine Service, Jordan Sturdy, John-David Collins, Harvey Edwards. (Not pictured: Dr. Rachel Markwald.)*



## Influenza Surveillance in West Africa and Eastern Mediterranean



*Centre Hospitalier des Armées de Lomé Assessment Meeting: Representatives from the Institut National d'Hygiène and Togo Armed Forces participated in the Influenza Surveillance Assessment Meeting headed by Dr. Talla Nzussouo and Lt. Gabriel Defang.*

*From NAMRU-3 Public Affairs*

CAIRO—The U.S. Naval Medical Research Unit No. 3 ([NAMRU-3](#)) has played a key role in the establishment of influenza surveillance capability within the West African and Eastern Mediterranean regions. Historically, there has been minimal data regarding the epidemiology of influenza within these regions, and the circulating influenza strains have not been considered in the composition of the annual influenza vaccine.

Through partnerships with the CDC and the Armed Forces Health Surveillance Center/Global Emerging Infectious Surveillance and Response System (AFHSC/GEIS), NAMRU-3 has established sentinel sites for collection, storage and shipment of influenza samples; has donated needed equipment and supplies to host-country laboratories for viral identification, isolation and molecular diagnostics; and serves as a reference laboratory for further testing of isolates from partner sites.

The goal of AFHSC/GEIS is to contribute to the protection of Department of Defense healthcare beneficiaries and the global community through an integrated worldwide emerging infectious disease surveillance system. GEIS was established in 1997 to provide a mechanism within DoD to centralize coordination of surveillance efforts conducted through DoD overseas medical research and development laboratories. Efforts ultimately support and strengthen surveillance among deployed U.S. military personnel and aid in diagnosis and treatment at military treatment facilities. In addition, all host country partner activities are directed toward improvement of each country's diagnostic and reporting requirements in accordance with the World Health Organization (WHO).

Sites in two partner countries, Qatar and Jordan, have been granted WHO accreditation as National Influenza Centers, and several other sites have begun the process, which is necessary for collaborating with the WHO and contributing to the vaccine production process.

NAMRU-3 personnel have conducted more than 30 trainings events for host-country laboratory personnel and sentinel site staff in the last three years.

***NAMRU-3 established sentinel sites for collection, storage and shipment of influenza samples; has donated needed equipment and supplies to host-country laboratories for viral identification, isolation and molecular diagnostics; and serves as a reference laboratory for further testing of isolates from partner sites.***

NAMRU-3 has maintained its status as an H5 influenza reference laboratory in the WHO Global Influenza Surveillance and Response System (GISRS). The GISRS monitors which influenza viruses are circulating in humans around the world throughout the year.

Influenza specimens and isolates are forwarded to a WHO collaborating center, where they are analyzed for antigenic (immune response), genetic and anti-viral drug sensitivity properties. These data provide information about the predominant influenza viruses currently spreading and circulating in different parts of the world.



*At the Institut National d'Hygiène Reference Laboratory: Mr. Ehab Amir (left) conducts training on the calibration, operation and maintenance of the automated RNA extractor and RT-PCR equipment donated by NAMRU-3. Lt. Gabriel Defang (right) stressed the need for proper storage of laboratory samples and maintenance of a cold chain for all samples transported for testing at the reference laboratory.*

## NAMRU-2's Infectious Diseases Research Collaboration with Vietnam

HAWAII—The U.S. Naval Medical Research Unit No. 2 (NAMRU-2) joined a research collaboration with the Vietnam People's Army (VPA) Military Institute of Hygiene and Epidemiology (MIHE) as part of the long-established relationship between the VPA and the Australian Defence Force Military Malaria Institute.

NAMRU-2 hosted a delegation of Vietnamese military officers at the unit's current location in Pearl Harbor, Hawaii in July. During the visit, Capt. George Schoeler, NAMRU-2 commanding officer, provided a short history of NAMRU-2 followed by a presentation on current research being done in Southeast Asia, including febrile illness surveillance studies in Cambodia, Laos and Singapore. The delegation was in Hawaii as part of the Rim of the Pacific 2012 Exercise.

"The Vietnamese delegation was very interested in NAMRU-2's new activities in Vietnam," said Schoeler. "One of the studies we are doing is monitoring resistance to anti-malaria medication currently used in Vietnam. We are also engaged in entomological studies to conduct surveillance, identification and screening of mosquito vectors of malaria in the study areas. NAMRU-2 has also initiated a respiratory surveillance study with the Vietnamese Military Institute of Hygiene and Epidemiology."

A study is focusing on clinical trials to monitor resistance to anti-malarial medications. Two clinical trials in the Phuoc Chien Commune (PCC) of Nhan Thuan province will monitor how effective the commonly used anti-malarial medications are in treating patients in Vietnam. The first clinical trial will determine the effectiveness of two medications (Artesunate and



*Lt. Ian Sutherland (front right), NAMRU-2 entomologist, with colleagues from MIHE and IMPE in the remote Phuoc Chien Commune.*

Artemether-Lumefantrine) on the type of malaria most likely to cause severe disease (*P. falciparum*).

The second clinical trial will determine the effectiveness of the medication chloroquine in treating the most common malaria parasite (*P. vivax*) in Vietnam.

Current entomological studies focus on surveillance, identification and pathogen screening of mosquito vectors of malaria in the study areas. Recent activities include the successful first-phase field studies at village and mountain sites at PCC and initial entomology team collaborations between MIHE, NAMRU-2, and the Vietnamese Institute of Malaria and Parasitology Epidemiology. This is the first U.S.-Vietnam direct military-to-military entomology field survey and vector biology study of malaria vectors.

"So far, data obtained suggest the highest risk for malaria transmission and maintenance is in a forest malaria cycle in mountainous areas," said Schoeler.

Additional entomological activities include mosquito surveillance and testing at PCC, with particular attention to further development of the mountain field sites, including landing/biting counts, larval surveys, layered baiting/trapping techniques, human malaria seroprevalence testing, and surveillance activities conducted during the upcoming dry and rainy seasons.

When asked about the field assessment, NAMRU-2 entomologist Lt. Ian Sutherland said, "There is nothing like the challenge and camaraderie of getting out of the lab or office and working in the field. I was very happy with the immense spirit of teamwork and cooperative effort from everyone on the team. This mission was a

*(Continued on page 12)*



*Capt. George Schoeler, NAMRU-2 commanding officer, provides background presentation on NAMRU-2's current research efforts to members of the Vietnamese Military Medicine Department during a recent visit to NAMRU-2 in Pearl Harbor, Hawaii.*



## Quarterly Update from NMRC's Office of Technology Transfer

By Todd A. Ponzio, Director, NMRC Office of Technology Transfer

SILVER SPRING, Md.—This past quarter has seen a flurry of technology transfer activity, especially on the Cooperative Research and Development Agreement (CRADA) front.

The non-federal partner can provide research funds to the federal partner. For the fifteen Naval Medical Research Center (NMRC) enterprise CRADAs executed over the past quarter, enterprise laboratories stand to receive \$1.6 million in funds. This activity, both scientific and financial, is a strong endorsement of the unique skills and capabilities of Navy Medicine scientist and physicians.

Collaborative research activities abound throughout the enterprise. Here are a few examples. Researchers from the Naval Health Research Center (NHRC) in San Diego are

working with companies to advance treatments for infectious diseases and a field-deployable injury-assessment instrument. Researchers from the U.S. Naval Medical Research Unit No. 6 in Lima, Peru, are spearheading collaborations focused on evaluating a diagnostic method for gastrointestinal diseases and treatments for dengue, both major warfighter readiness concerns. A research team at the Naval Medical Research Unit-Dayton at Wright Patterson Air Force Base in Ohio initiated a joint project aimed at evaluating brain activity related to spatial processing; the results could help address issues in aviation medicine related to disorientation in flight.

Another area of collaborative research initiatives focuses on the Military Treatment Facilities (MTFs). The NMRC Technology Transfer Office supports the MTFs as well as the R&D laboratories. Over the past quarter, NMRC evaluated a total of 32 CRADA packages from the Naval Medical Center Portsmouth and the Naval Medical Center San Diego.

Let me add a little history and current numbers to illustrate the CRADA activity handled by this office. The Department of Navy (DoN) research enterprise - which includes over 20 laboratories focusing on everything from biomedical technologies to sea and air technologies to weaponry - executed just over 200 CRADAs in 2007. Of these, 74 involved researchers from either the Navy Medical Research Enterprise or the Naval Medical Center Portsmouth and Naval Medical Center San Diego. In 2011, the DoN executed 200 CRADAs, with a total of 65 from the Navy Medicine community. In 2007 we handled 37 percent of all CRADAs for DoN, and in 2011 we handled 33 percent - our numbers are consistent, and we are a very busy office.

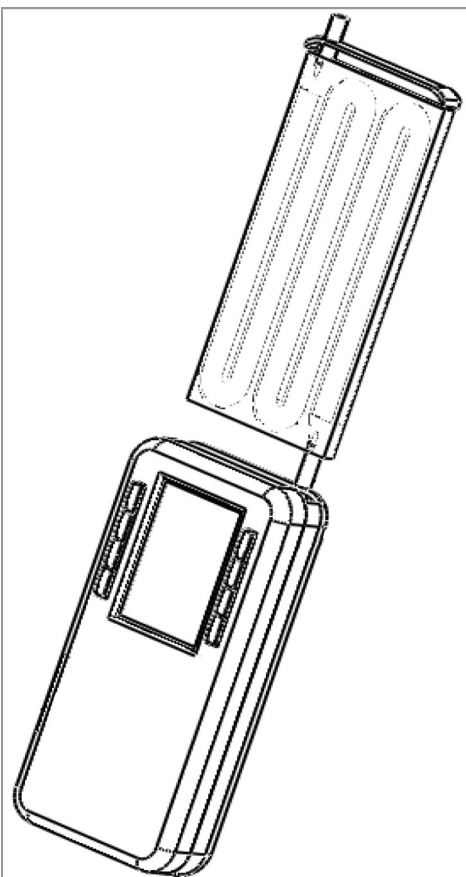
Navy Medicine physicians and scientists are central in the collaborative research efforts throughout DoN. They also make a sizeable contribution with respect to inventions and

patent licenses within the DoN intellectual property portfolio. The intellectual property attorneys and Technology Transfer staff at NMRC know first-hand the inventive capabilities of these researchers, both within the enterprise as well as at the MTFs.

Here is an example. One such invention concerns an intravenous fluid monitoring device invented by Cmdr. Frank Dos Santos from Naval Medical Center Portsmouth, working with a CRADA partner. The device is capable of measuring fluid flow rate as well as maintaining a preset temperature. The device is small and can transmit data wirelessly to a receiver. With current technologies, an individual must visually inspect and monitor flow rates, which can be a serious concern in field settings and time consuming in hospitals. With this technology, data from several devices could be transmitted to a central receiver and a single corpsman or physician could monitor them all in real time.

There are of course other inventions as well as a host of exciting and translational collaborative research projects. To highlight them all would require too much space, although we do hope to have the opportunity to address some of these in future issues of the newsletter. In the meantime, keep those collaborations and inventions coming, and we'll do our best to assist the researchers as they collaborate, create and invent technologies for the benefit of the warfighter.

A CRADA is a cooperative agreement between a federal and non-federal entity to facilitate sharing of joint research and development. A CRADA allows partners to optimize resources, share technical expertise and intellectual property within a protected environment, and expedite the commercialization of federally developed technology. CRADAs were first created as a result of the Stevenson-Wydler Technology Innovation Act of 1980, which was amended by the Federal Technology Transfer Act of 1986.



Patent drawing of intravenous monitoring device.

# Naval Health Research Center's Medical Service Corps in Action

From NHRC Public Affairs



SAN DIEGO—Medical Service Corps (MSC) officers from the Naval Health Research (NHRC) Center in San Diego recently

presented the lab's current research efforts at a job fair at Naval Medical Center San Diego showcasing the diversity and complexity of the work they perform. Their efforts were also presented at the annual MSC Symposium hosted by the Southern California Medical Service Corps Officers Association. Below is a description of the research performed in each NHRC Department.

**The Medical Modeling, Simulation and Mission Support Department** conducts analyses and develops models to provide medical decision support to operational commanders, medical logisticians and field medical personnel to determine resources required to support combat and peacetime deployments.

**The Warfighter Performance Department** conducts research related to the measurement, maintenance, restoration, enhancement and modeling of human performance in military operational environments.

**The Behavioral Sciences and Epidemiology Department** studies behavioral trends that impact warfighter readiness, including issues affecting personnel such as combat and operational stress, posttraumatic stress disorder, misconduct, substance use, suicide and wellness issues.

**The Deployment Health Research Department** conducts epidemiological studies to investigate the longitudinal health experience of previously deployed military personnel and the development/evaluation of health surveillance strategies. Core programs include the Millennium Cohort Study, the Birth and Infant Health Registry, and the Recruit Assessment Program.

**The Operational and Infectious Diseases Department** serves as the Navy hub for surveillance of infectious pathogens of operational

concern, conducting population-based surveillance for enteric and respiratory pathogens at DoD recruit training sites and on twenty large platform ships located on the U.S. East and West Coasts and in Japan.

**The DoD HIV/AIDS Prevention Program** works to reduce the incidence of HIV/AIDS among uniformed personnel in select African nations and beyond. The Defense HIV/AIDS Prevention Program Management Office at NHRC provides day-to-day direction of the DoD effort to foreign militaries in over 70 countries worldwide.

The Naval Health Research Center is strategically located on Point Loma. This location allows ready access to the operational forces of the Navy and Marine Corps, including over 420 Naval surface, air, submarine and special operations units; a major Marine Corps base; nine training commands; world-class academic institutions; and biotechnology centers. The laboratory is ideally suited to the execution and oversight of research and the fleet transition of biomedical research products.

## NAMRU-3 AFRICOM

*(Continued from page 7)*  
malaria vector distribution and abundance in Djibouti has been reported to the Horn of Africa and Camp Lemonnier. Camp Lemonnier is home to the Combined Joint Task Force – Horn of Africa of the AFRI-COM. Camp Lemonnier is the only U.S. military base located in Africa supporting operations geared toward building security and stability in the region.

NAMRU-3 conducts infectious disease research and surveillance in the Middle East, Southwest Asian, Africa and Eastern Europe. Current studies also focus on influenza-like illness, acute febrile illness, diarrheal diseases, hemorrhagic fever, HIV and infection control.

## NAMRU-2's Collaboration with Vietnam

*(Continued from page 10)*  
foundational success at building a strong joint MIHE and NAMRU-2 partnership.”

Another epidemiologic research effort will determine the causes of fevers that constitute the major disease burden for many developing countries.

“With enthusiastic support from the VPA's Military Medical Department, epidemiologic research will focus on the infectious disease causes of fevers, which will assist in proper diagnosis and appropriate treatment for febrile patients,” said Schoeler. “The results from this study could impact clinical treatment guidelines of febrile

illness in Vietnam.”

According to Schoeler, these research studies are funded by the Global Emerging Infections Surveillance and Response System through the U.S. Department of Defense Armed Forces Health Surveillance Center.

NAMRU-2 conducts infectious disease research and surveillance in South Asia and Southeast Asia. Current studies include respiratory disease surveillance, malaria drug resistance, novel vector control measures and dengue cohort monitoring. The goal is to study tropical diseases where they occur and where new preventive measures and treatment may be tested and evaluated.



## WRAIR and NMRC Recognize 2012 STEM Student Interns

SILVER SPRING, Md.—An awards ceremony for science, technology, engineering and mathematics (STEM) students was held at the Walter Reed Army Institute of Research (WRAIR) and Naval Medical Research Center (NMRC), August 9. Middle, high school and college students come to WRAIR/NMRC each year during the spring and summer months to intern and gain hands-on experience as a potential researcher. This is a great chance for students who are interested in a career in one of the STEM fields to hone their skills.

The awards ceremony was coordinated by Swati Ramadorai, the student program coordinator from WRAIR, with Lt. Mario Guerrero, NMRC student programs coordinator.

WRAIR's executive officer, Col. Shanda Zugner, said she was honored to be there. Former NMRC commanding officer, Capt. Richard L. Haberberger, Jr., was also there to support the students and mentors during the award ceremony.

"It's important for science and technology to be advanced. I am impressed by the quality of work done by the students," Haberberger said.

This year, over 100 students participated in several internship programs at WRAIR/NMRC. The programs—Science and Engineering Apprentice Program (SEAP); Naval Research Enterprise Intern Program (NREIP); College Qualified Leaders Program (CQL); and Gains in the Education of



*Jasmine Mutunga (left), Northwest High School, Germantown, Md., discusses her research project during the award ceremony with Dr. Kevin Porter, NMRC researcher.*

Mathematics and Science Program (GEMS)—allow students to be paired with military and civilian researchers as their mentors.

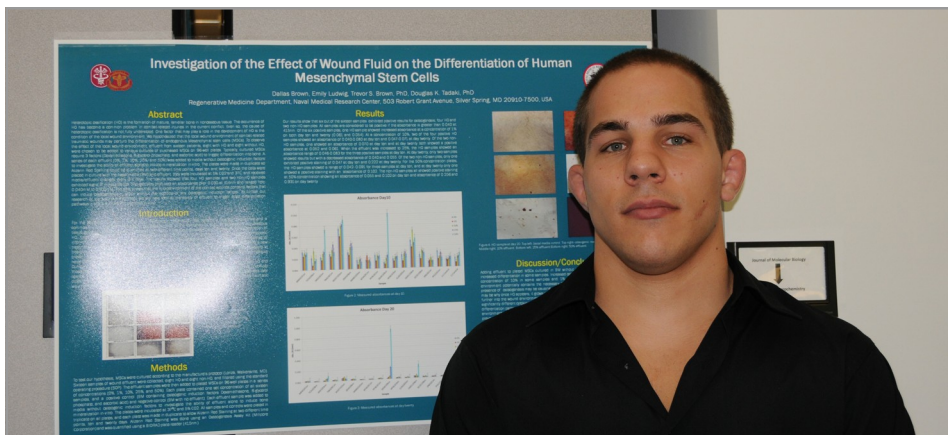
In the past, NMRC has highlighted the benefits of a student-mentor relationship. The students are given the opportunity to do their own research and develop a poster, which allows them to showcase their passion and interest towards a subject that could potentially lead them towards a promising STEM career.

Jasmine Mutunga, a student from Northwest High School in Germantown, Md., did her research on the "Detection of Spotted Fever Group and

Typhus Group Rickettsia Specific Antibodies in Djibouti Patient Samples." Her mentors were Dr. Allen Richards and Dr. Ju Jiang, both NMRC researchers. Mutunga's research looks at Rickettsial diseases, which are a threat to people from various countries across the globe, including the United States.

"My mentors gave me a lot of assistance throughout the duration of the program," Mutunga said. "I had absolutely no experience working in a lab before working at NMRC, and Dr. Ju Jiang taught me the basics. She taught me how to work with pipettes and how to run the ELISA titer and screening procedure. She and Dr. Allen Richards really helped me put together my poster and gave me feedback on what needed to be improved."

Another student, Dallas Brown of the University of Maryland-College Park, was mentored by NMRC researchers Dr. Trevor Brown and Ms. Emily Ludwig. Brown's research was on the "Investigation of the Effect of Wound Fluid on the Differentiation of Human Mesenchymal Stem Cells" and looked more closely at heterotopic ossification (HO), the formation of mature, lamellar bone in nonosseous tissue, which has become a common problem in combat-related injuries.



*Dallas Brown, University of Maryland-College Park student, and his poster presentation at the STEM awards ceremony.*



## NSMRL Researcher Invited Speaker and Judge at Science Fair

*From NSMRL Public Affairs*

GROTON, Conn.—Lt. Cmdr. Shawn E. Soutiere, research physiologist and deputy head of Submarine Medicine and Survival Systems at the Naval Submarine Medical Research Laboratory ([NSMRL](#)), Groton, Conn., was an invited speaker and judge at the 49th Connecticut Junior Sciences and Humanities Symposium (CT-JSHS) at the University of Connecticut, Storrs.

Approximately 200 select high school students attended the event. Many of the participants, nominated by their teachers, conducted original research under the guidance of professional mentors and presented their findings at the event. Their research ran the gamut from designing electronic skin to improving anti-cancer agents.

"It's really interesting to see the amazing work my peers are presenting," said Isabel Baker, a senior at Staples High School in Westport. Baker's poster presentation focused on factors that cause normal cells to turn into leukemia cells. Her poster presentation took first place in that category.

Joy Erickson, director of the symposium, told Soutiere his presentation was new, interesting and opened students' eyes to the opportunities in the U.S. Military, options that they had probably never considered.

All of the judges had a difficult time determining the top finishers from the high-quality line-up, according to Erickson. She said Soutiere offered valuable input in the judging and provided great insights. She added that this type of thoughtful judging is valued given the amount of time it takes and the broad range of knowledge required to give each student just consideration.

The Naval Submarine Medical Research Laboratory is located on the New London Submarine Base. The lab's mission is to protect the health and enhance the performance of our warfighters through focused submarine, diving and surface research solutions.



*Isabel Baker, senior, Staples High School, presented her study of the relationship of NOTCH4 protein and leukemia.*



*The top five oral presenters at the 49th Connecticut Junior Sciences and Humanities Symposium, at the University of Connecticut, Storrs.*



## Navy Lab Welcomes New Commander with Traditional Ceremony

(Continued from page 3)

Capt. DeInnocentiis, and welcoming their new commanding officer, Capt. Rita Simmons. When you look at NAMRU-San Antonio's accomplishments over the short three-year life of this command, it's apparent they have made vast contributions to the Navy medical research community," he said. "The people of this command have demonstrated their excellence and eagerness to excel. To Capt. Simmons, the Navy has the utmost confidence in your ability to command. Enjoy your time; it will be over before you know it."

The ceremony included many of the traditions dating back to the origins of the Navy itself, and reminded the 150 people in attendance of the rich Navy heritage.

"The strength of today's Navy stems in large measure from the observance of customs and traditions, each founded on need, each contributing its share to the Navy's stability, combat effectiveness, and smooth transfer of authority," said Capt. Scott R. Jonson, the command's executive officer and master of ceremonies for the function. "Dating back to the age of sail, the tra-

dition of striking the ship's bell and posting sideboys are designed to honor high ranking officers and dignitaries."

Throughout the ceremony, all senior officers were 'piped aboard,' a procedure where a boatswain's mate used a boatswain's pipe to signal the distinctive call when officials are boarding or leaving a ship. The pipe was accompanied by the sounding of the ship's bell. When used together, they have a long tradition on Navy ships to regulate movement as well as announce the arrival and departure of dignitaries.

### Greetings from the NMRC Ombudsman!

It is September and school has started. For many of us, a return to school brings with it the ritual of packing school lunches. On this note, September is National Childhood Obesity Awareness Month. As you pack those lunches, look for health-conscious snacks and treats to power your kids through the day. Additionally, while the weather is still mild in the National Capital Region, encourage outdoor activities and look to establish exercise as a healthy habit that your children can build upon their entire lives. For more information about childhood obesity prevention, visit <http://www.healthierkidsbrighterfutures.org/>.

Although the summer is largely behind us, there are plenty of events in the National Capital Region for military families to look forward to. Here is a list of upcoming events.

**Deployed Family Fun Day is September 8th.** Have a deployed family member? Will you deploy in the future? Have you or a family member recently returned home? This is a FREE event just for you and your family! Join the USO on Saturday, September 8th, 2012, for Deployed Family Fun Day! Have fun and learn about programs and services available to you and your family. **When:** Saturday, September 8 from 11:00 a.m. - 2:00 p.m. **Where:** Joint Base Anacostia Bolling, Bolling Green Park (Rain Location: Youth Center across the street). For more info: <http://www.usometrodc.org/page.php?p=36&cei=1090>

**Defenders of Freedom Appreciation Day – September 22nd.** For those in the Naval District Washington, comes join other military families and DoD personnel for a day of fun at Six Flags Amusement Park in Largo, Maryland. Tickets are only \$20 and the first 5,000 tickets purchased get free admission to the Lynyrd Skynyrd Concert the same evening. For event and ticket information, visit: <http://cnic.navy.mil/NDW/FleetFamilyReadiness/ThingstoDo/index.htm>

For other events and outings, take advantage of the MWR office! As I write this, the Washington Nationals are 4.5 games ahead in the National League East Division and the Baltimore Orioles are strong contenders for a wild card spot. Spend a day at the ballpark and be a part of the exciting baseball season the region has enjoyed this year! For you football fans, pre-season has already started and the MWR has Redskins tickets, too!

Finally, I'd like to close this month's column on the same topic with which I started, namely the health and welfare of our children. Beyond Childhood Obesity Awareness Month, I want to make you aware of resources that may be of benefit to you and your child. Specifically, Navy Child and Youth Programs offer services specifically designed to meet the needs of the military mission and service members and their families. Programs include Child Development Centers, Child Development Homes, School-age Care, Youth and Teen Programs, as well as Child and Youth Education services. For more information on these programs and services, visit <https://qol.navyaims.net/CYPWeb/>

As always, if you are in search of other resources or assistance, please don't hesitate to contact me. My email address is [NMRC.Ombudsman@gmail.com](mailto:NMRC.Ombudsman@gmail.com)

Have a fine day!  
Alexandra Mora  
NMRC Ombudsman